SYBASE®
An SAP® Company

Getting Started

Replication Server® 15.7.1 SP100

DOCUMENT ID: DC10114-01-1571100-01
LAST REVISED: May 2013
Copyright © 2013 by Sybase, Inc. All rights reserved.
This publication pertains to Sybase software and to any subsequent release until otherwise indicated in new editions or technical notes. Information in this document is subject to change without notice. The software described herein is furnished under a license agreement, and it may be used or copied only in accordance with the terms of that agreement.
Upgrades are provided only at regularly scheduled software release dates. No part of this publication may be reproduced, transmitted, or translated in any form or by any means, electronic, mechanical, manual, optical, or otherwise, without the prior written permission of Sybase, Inc.
Sybase trademarks can be viewed at the Sybase trademarks page at *http://www.sybase.com/detail?id=1011207*. Sybase and the marks listed are trademarks of Sybase, Inc. ® indicates registration in the United States of America.
SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world.
Java and all Java-based marks are trademarks or registered trademarks of Oracle and/or its affiliates in the U.S. and other countries.
Unicode and the Unicode Logo are registered trademarks of Unicode, Inc.
All other company and product names mentioned may be trademarks of the respective companies with which they are associated.
Use, duplication, or disclosure by the government is subject to the restrictions set forth in subparagraph (c)(1)(ii) of DFARS 52.227-7013 for the DOD and as set forth in FAR 52.227-19(a)-(d) for civilian agencies.
Sybase, Inc., One Sybase Drive, Dublin, CA 94568.

Contents

Conventions **1**
Introduction **5**
Replication Environment Components 5
Preinstallation Tasks 5
Planning Your Replication System 6
Obtaining a License 6
System Requirements 7
Installation Directory for Replication Server 11
Creating the Sybase User Account 14
Verifying Your Environment 14
Replication Server Installation **15**
Installing Replication Server 15
Postinstallation Tasks 19
Adding a Login for Replication Manager to the Adaptive Servers 19
Changing the Replication Server Host Name Using dsedit 19
Server Entries to the Interfaces Files 20
The Replication Environment **23**
Starting Sybase Central 23
Defining the Replication Environment 23
Configuring Replication 25
Verifying Data Replication 26
Manage Replication Server **29**
Starting the Sample Replication Server 29
Logging in to the Sample Replication Server 29
Stopping the Sample Replication Server 30
Viewing the Sample Replication Server Logs 30
Viewing Database Replication Definitions 30
Viewing Database Subscriptions 30
Replication Manager 31

Index 33

Conventions

These style and syntax conventions are used in Sybase® documentation.

Style conventions

Key	Definition
`monospaced(fixed-width)`	• SQL and program code • Commands to be entered exactly as shown • File names • Directory names
`italic monospaced`	In SQL or program code snippets, placeholders for user-specified values (see example below).
italic	• File and variable names • Cross-references to other topics or documents • In text, placeholders for user-specified values (see example below) • Glossary terms in text
bold san serif	• Command, function, stored procedure, utility, class, and method names • Glossary entries (in the Glossary) • Menu option paths • In numbered task or procedure steps, user-interface (UI) elements that you click, such as buttons, check boxes, icons, and so on

If necessary, an explanation for a placeholder (system- or setup-specific values) follows in text. For example:

Run:

```
installation directory\start.bat
```

where *installation directory* is where the application is installed.

Syntax conventions

Key	Definition
{ }	Curly braces indicate that you must choose at least one of the enclosed options. Do not type the braces when you enter the command.
[ ]	Brackets mean that choosing one or more of the enclosed options is optional. Do not type the brackets when you enter the command.
( )	Parentheses are to be typed as part of the command.
|	The vertical bar means you can select only one of the options shown.
,	The comma means you can choose as many of the options shown as you like, separating your choices with commas that you type as part of the command.
...	An ellipsis (three dots) means you may repeat the last unit as many times as you need. Do not include ellipses in the command.

Case-sensitivity

- All command syntax and command examples are shown in lowercase. However, replication command names are not case-sensitive. For example, **RA_CONFIG**, **Ra_Config**, and **ra_config** are equivalent.
- Names of configuration parameters are case-sensitive. For example, **Scan_Sleep_Max** is not the same as **scan_sleep_max**, and the former would be interpreted as an invalid parameter name.
- Database object names are not case-sensitive in replication commands. However, to use a mixed-case object name in a replication command (to match a mixed-case object name in the primary database), delimit the object name with quote characters. For example: **pdb_get_tables** "*TableName*"
- Identifiers and character data may be case-sensitive, depending on the sort order that is in effect.
  - If you are using a case-sensitive sort order, such as “binary,” you must enter identifiers and character data with the correct combination of uppercase and lowercase letters.
  - If you are using a sort order that is not case-sensitive, such as “nocase,” you can enter identifiers and character data with any combination of uppercase or lowercase letters.

Terminology

Replication Agent™ is a generic term used to describe the Replication Agents for Adaptive Server® Enterprise, Oracle, IBM DB2 UDB, and Microsoft SQL Server. The specific names are:

- RepAgent – Replication Agent thread for Adaptive Server Enterprise
- Replication Agent for Oracle

- Replication Agent for Microsoft SQL Server
- Replication Agent for UDB – for IBM DB2 on Linux, Unix, and Windows
- Replication Agent for DB2 for z/OS

Introduction

Getting Started with Replication Server® is for users of Adaptive Server Enterprise who are new to Replication Server. Use the step-by-step instructions to install, configure, and set up a sample Replication Server and a simple replication environment for replicating data from one Adaptive Server database to another. Getting Started with Replication Server describes only those tasks necessary to set up a simple replication system.

Replication Environment Components

Become familiar with the various components of a replication environment.

In addition to Replication Server, the replication environment includes:

- A primary database, which is the source of data for replication, and a replicate database, to which you replicate data.

  To set up a test environment, either install identical copies of the `pubs2` or `pubs3` databases that come with Adaptive Server, or create copies of your own.
- Two Adaptive Server Enterprise data servers. The primary Adaptive Server manages the primary database and the replicate Adaptive Server manages the replicate database.
- Sybase Central™, the Sybase graphics-based management tool, and Replication Manager, the Replication Server plug-in to Sybase Central, Java Edition.

  Note: Sybase Central and the Replication Manager plug-in are available on a separate installer.
- The Embedded Replication Server System Database (ERSSD), which stores information about the replication environment.
- Replication Monitoring Services (RMS), which is a middle monitoring layer that provides monitoring services to replication environments.

Preinstallation Tasks

You need to perform some preinstallation tasks before installing Replication Server.

See the *Replication Server Release Bulletin* for your platform for the updated list of operating systems and platforms that Replication Server supports and for the latest operating system patches, as well as for any last-minute information that was too late to be included in the document.

The preinstallation tasks include:

1. Planning your replication system – identify the primary and replicate Adaptive Servers and the primary and replicate databases.
2. Obtaining a license – Sybase products, such as Replication Server, require valid license keys to use the product beyond a grace period.
3. Checking system requirements – verify that you are running a supported operating system and that you have sufficient space available to set up and run Replication Server.
4. Selecting an installation directory for Replication Server – it is important that you select an installation directory that is compatible with your existing Sybase software. This may involve installing Replication Server in an existing Sybase installation directory or in a completely new installation directory.
5. Creating the Sybase user account, if one does not already exist.
6. Verifying your environment – verify that you have the proper user accounts and privileges.

Planning Your Replication System

Identify the primary Adaptive Server and the replicate Adaptive Server. The primary Adaptive Server manages the primary database and the replicate Adaptive Server manages the replicate database.

1. To set up a test environment, install identical copies of either the `pubs2` or `pubs3` database.
2. Verify that both Adaptive Servers are up and running before you configure Replication Server.

Obtaining a License

Obtain valid SySAM licenses before you begin the installation. Sybase Software Asset Management (SySAM) performs license administration and asset management tasks for Sybase products.

Before installing your product, choose a SySAM license model, and determine license server information.

When you purchase SySAM 2–enabled Sybase products, you must generate, download, and deploy SySAM product licenses.

- If you purchased your product from Sybase or an authorized Sybase reseller, go to the secure Sybase Product Download Center (SPDC) at *https://sybase.subscribenet.com* and log in to generate license keys. The license generation process may vary slightly, depending on whether you ordered directly from Sybase or from a Sybase reseller
- If you ordered your product under an SAP® contract and were directed to download from SAP Service Marketplace (SMP), you can use SMP at *http://service.sap.com/licensekeys* to generate license keys for Sybase products that use SySAM 2-based licenses.

See *Replication Server Installation Guide > Planning Your Installation > Obtaining a License at SPDC or SMP* to learn more about Replication Server product editions, and licensing options such sub-capacity licensing. For detailed instructions to configure SySAM licensing,

see the *Sybase Software Asset Management Users Guide* on the Sybase Product Documentation Web site at *http://sybooks.sybase.com*.

System Requirements

Check the system requirements and system patches for the server on which you will install Replication Server.

System Requirements for Replication Server on Windows

Verify that you are running a supported operating system and that you have sufficient space available to set up and run the sample Replication Server on Windows.

Item	Requirement
CPU	A Pentium processor.
RAM	A minimum of 1GB RAM.
Disk storage	For a full installation, the total disk space required is approximately 750MB. Disk space required: • 450MB for the Replication Server software, supporting files, and log files. • (Optional) A minimum of 700MB if you are installing Data Assurance (DA) Option. • 20MB for each Replication Server disk partition. The disk partition may be on a different disk than your Sybase software. **Tip:** For the best performance, install Replication Server partitions on fast file systems or operating system raw devices. • 30MB for temporary usage during installation. One of: • Disk space for your Adaptive Server Enterprise database, which serves as your Replication Server System Database (RSSD) if you are not using the Embedded RSSD (ERSSD). See your Adaptive Server Enterprise documentation for system requirements. • 80MB for your SQL Anywhere® database, which serves as your ERSSD. The database directory, transaction log directory, and backup directory that make up the 80MB should each reside on different disks. More disk space may be required, depending on your replication system application.

Item	Requirement
Operating system	One of: • Windows Server 2008 R2 – Service Pack 1 • Windows Server 2012 • Windows 7 – Service Pack 1 • Windows 8 If you are installing Replication Server on Windows 64-bit, download and install the latest security updates from the Microsoft Web site. Before you start the installation, install both Microsoft Visual Studio patches for your x86 or x64 Windows platform, download: • Microsoft Visual C++ 2005 Service Pack 1 Redistributable Package ATL Security Update at *http://www.microsoft.com/download/en/details.aspx?amp;displaylang=en&id=26347*. • Microsoft Visual C++ 2010 Service Pack 1 Redistributable Package MFC Security Update at *http://www.microsoft.com/en-us/download/details.aspx?id=26999*.
VMware VSphere ESXi	VSphere ESXi 5.0 Replication Server on Windows 64-bit
Additional hardware	A minimum of 32-bit network card for better performance.
Supported protocols	TCP/IP, IPX/SPX, Microsoft Named Pipes.

System Requirements for Replication Server on UNIX

Verify that you are running a supported operating system and that you have sufficient space available to set up and run the sample Replication Server on UNIX platforms.

Item	Requirement
RAM	A minimum of 1GB RAM.

Item	Requirement
Disk storage	For a full installation, the total disk space required is approximately 2GB. Disk space required: • 950MB for the Replication Server software, supporting files, and log files on all UNIX operating systems except on IBM AIX that requires 1.5GB. • (Optional) A minimum of 700MB if you are installing Data Assurance (DA) Option. • An additional 20MB for each Replication Server disk partition. The disk partition may be on a different disk than your Sybase software. One of: • Disk space for your Adaptive Server Enterprise database, which serves as your Replication Server System Database (RSSD) if you are not using the Embedded RSSD (ERSSD). See your Adaptive Server Enterprise documentation for system requirements. • 80MB for your SQL Anywhere database, which serves as your ERSSD. The database directory, transaction log directory, and backup directory that make up the 80MB should each reside on different disks. More disk space may be required, depending on your replication system application.

Item	Requirement

Operating system	One of:
	• HP-UX Itanium II 11.31 (64-bit)
	The installer requires the **gzip** utility. Ensure that the path to **gzip** is set in the $PATH environment variable.
	• IBM AIX (64-bit):
	• AIX 6.1
	• AIX 7.1
	Before you install Replication Server, install the IBM XL C/C++ Runtime for AIX and the SMP Runtime Libraries required for your version of AIX. Obtain the libraries from your IBM AIX operating system installation media.
	These libraries are also available from the IBM AIX Web site:
	• The IBM XL C/C++ Runtime for AIX is available on the Web site under "Latest updates for supported IBM C and C++ compilers."
	• The SMP Runtime Libraries for AIX are available on the Web site under "IBM XL C/C++ Enterprise Edition for AIX, Runtime Environment and Utilities."
	To verify that the libraries are installed, issue:
	`source $SYBASE/SYBASE.csh`
	`cd $SYBASE/$SYBASE_REP/bin`
	`ldd ./repserver`
	• Linux x86-64 (64-bit):
	• Red Hat Enterprise Linux 5.5
	• kernel – 2.6.18-194.el5 #1 SMP
	• glibc – 2.5-49
	• Red Hat Enterprise Linux 5.6
	• kernel – 2.6.18-238.5.1.el5 #1 SMP
	• glibc – 2.5
	• (ExpressConnect for HANA DB) Red Hat Enterprise Linux 6
	• Red Hat Enterprise Linux 6.2
	• kernel – 2.6.32-131.0.15.el6.x86_64 #1 SMP
	• glibc – 2.12-1.47
	• Red Hat Enterprise Linux 6.3
	• kernel – 2.6.32-220.el6.x86_64 #1 SMP
	• glibc – 2.12-1.80
	• (ExpressConnect for HANA DB) SuSE Linux Enterprise Server SLES 11
	• SuSE Linux Enterprise Server SLES 11 Service Pack 2

Item	Requirement
	• kernel – 3.0.13-0.27 -default #1 SMP • glibc –2.11.3-17.31.1 • SuSE Linux Enterprise Server SLES 11.1 • kernel – 2.6.32.12-0.7-default #1 SMP • glibc –2.11.1-0.17.4 • Linux on IBM p-Series (Linux on POWER) (64-bit): • Red Hat Enterprise Linux 5.5 • kernel – 2.6.18-53.el5 #1 SMP • glibc – 2.5-49 • Red Hat Enterprise Linux 6.0 • kernel – 2.6.32-71.el6.ppc64 #1 SMP • glibc – 2.12-1.7.el6.ppc64 • glibc – 2.12-1.7.el6.ppc • SuSE Linux Enterprise Server SLES 11 • kernel – 2.6.27.19-5 - ppc64 #1 SMP • glibc – 2.9-13.2 **Note:** ExpressConnect for HANA DB is not supported on Linux on IBM p-Series. • Solaris (64-bit) • Solaris 10 • Solaris 11
VMware VSphere ESXi	VSphere ESXi 5.0 Replication Server on Linux x64 and Solaris x64
Supported protocols	TCP/IP

Installation Directory for Replication Server

You must choose carefully whether to install Replication Server in its own product directory or in a directory with other Sybase products.

In some cases, installing Replication Server on top of existing Sybase applications can adversely and irreversibly affect those applications.

Replication Server Installation in an Existing Directory

There are several restrictions to the directories where you can install Replication Server.

Do not install Replication Server 15.7.1 SP100 in an existing Sybase installation directory if that directory contains these Sybase products:

- Replication Server version 12.5 or earlier
- Adaptive Server version 12.5.0.x or earlier
- Open Client/Server™ version 12.5.0 or earlier
- OpenSwitch™ version 12.5 or earlier
- DirectConnect™ version 12.5 or earlier

Warning! Installing Replication Server 15.7.1 SP100 on top of any of these products incapacitates older versions of these products, and can also adversely affect other Sybase products; you cannot reverse these effects by performing an uninstallation.

Replication Server Installation in a Unique Directory

On UNIX platforms, you can install Replication Server in a unique directory without affecting existing Sybase environment variables. You might have to reset environment variables if you installing Replication Server 15.7.1 SP100 in a unique directory on Windows platforms.

Note: When you install Replication Server in a unique installation directory, you must maintain two interfaces files—one for Replication Server components and one for your other Sybase applications.

See also

- *Adding Server Entries to the Interfaces Files* on page 21
- *Installing Replication Server* on page 15

Installing Replication Server in a Unique Directory on Windows

Installing Replication Server in a unique directory may reset environment variables for other Sybase products and produce unpredictable results.

1. Terminate all Sybase processes running on the system on which you are installing Replication Server, including the SySAM License Server if you plan to upgrade it.

   Note: If you do not know which processes are running, contact your system administrator.

   To stop the SySAM license server, see the *SySAM Users Guide*.
2. If you have an existing Adaptive Server that runs as a Windows service, disable the service.
   a) Click **Start > Settings > Control Panel > Administrative Tools > Services**.
   b) In the Services list, right-click **Sybase SQLServer** *server name*.
   c) Select **Properties**.
   d) Set Startup Type to Disabled.

e) Close the Services window.

3. Record the current environment variable settings in a file called `env.orig` by entering:

```
set > env.orig
```

You can read this file with a text editor.

Specifically, record the current values of:

- INCLUDE
- LIB
- LM_LICENSE_FILE
- PATH
- SYBASE
- SYBASE_JRE

4. Insert the Replication Server media in the appropriate drive, or download and extract the Replication Server installation image from the Sybase Product Download Center (SPDC) or the SAP Service Marketplace (SMP).
5. Install Replication Server.
6. Specify a unique directory for the Replication Server product.
7. Specify the host name and port number of the license server.
8. Change the environment variables to the original settings that you recorded in step 3:
   a) Select **Start > Settings > Control Panel > System**.
   b) Click the **Advanced** tab.
   c) Select **Environment Variables**.
   d) Under System Variables, change the values of the variables listed in step 3.
9. Configure Adaptive Server to start automatically:
   a) Select **Start > Settings > Control Panel > Administrative Tools > Services**.
   b) In the Services list, right-click the **Sybase SQLServer** *server name*.
   c) Click **Properties**.
   d) Set Startup Type to Automatic.
10. Restart your system.

Note: When you install Replication Server in a unique installation directory, you must maintain two `sql.ini` files: one for Replication Server components and one for your other Sybase applications.

Creating the Sybase User Account

Create a Sybase user account to ensure that Sybase product files and directories are created with consistent ownership and privileges.

A user, such as the Sybase system administrator— who has read, write, and execute privileges —must perform all installation and configuration tasks. For Windows, the user must have the Administrator privilege.

1. To create a Sybase system administrator account, choose an existing account, or create a new account and assign a user ID, group ID, and password for it.

   This account is sometimes called the “sybase” user account. See your operating system documentation for instructions on creating a new user account.

   If you have already installed other Sybase software, the “sybase” user already exists.
2. Verify that you can log in to the machine using this account.

Verifying Your Environment

Verify your environment before starting the installation process.

1. Free memory and system resources by closing any open applications or utilities, including currently installed Sybase components.
2. Review the system requirements and verify that the directory location for the Sybase installation has sufficient space.
3. Check your operating system documentation or consult your operating system administrator.
4. Verify that your network software is configured.

   Sybase software uses network software, even if Replication Server and Sybase client applications are installed on a machine that is not connected to a network.
5. Check your platform-specific release bulletin for last-minute information about installing and running Replication Server.

   The latest release bulletins are also available on the Sybase Product Documentation Web site at *http://www.sybase.com/support/manuals*.

Replication Server Installation

The Replication Server installation program places all Replication Server software components in the Sybase installation directory.

The installation program also sets the environment variables and default parameters needed for sample Replication Server and starts sample Replication Server when the installation process is complete.

Installing Replication Server

Install Replication Server components.

Prerequisites

- Review the system requirements and complete the preinstallation tasks.
- Verify that you are logged in as the “sybase” user with read, write, and execute privileges.

Task

See the *Replication Server Installation Guide* to uninstall Replication Server. For more information, refer to your operating system documentation or consult your operating system administrator.

1. Insert the Replication Server product CD or DVD in the appropriate drive.
2. Mount the CD or DVD.

   On Windows:

   The operating system automatically mounts the CD or DVD. Go to step 4.

   On HP Itanium:

   a) Log out.
   b) Log in as “root.”
   c) Enter the following command, where *device_name* is the name of the CD or DVD drive device and */mnt/cdrom* is the name of the directory where the CD or DVD is to be mounted:

      ```
      mount -F cdfs -o ro device_name /mnt/cdrom
      ```

   d) Log out as “root”.
   e) Log in as “sybase.”

   On IBM AIX:

   Enter the following or similar command, where *device_name* is the name of the CD or DVD drive device and */mnt/cdrom* is the name of the directory where the CD or DVD is to

be mounted. The mount command is site-specific, so your mount syntax may differ from this example.

```
mount -v 'cdrfs' -r device_name /mnt/cdrom
```

On Linux:

Enter this command at the # prompt:

```
mount -t iso9660 /dev/cdrom /mnt/cdrom
```

On Solaris:

The operating system automatically mounts the CD or DVD. Go to step 4.

If you get CD or DVD reading errors, check your operating system kernel to make sure that the ISO 9660 option is turned on.

If your CD or DVD shows up as anything other than `sybasecd` on your machine (for example, `sybasecd#1`), this means you have previously installed a Sybase CD or DVD on your system.

To install this CD or DVD, restart your system or delete the `sybasecd` file in `/vol/dsk`.

3. Invoke the installer to install Replication Server in GUI mode.

   On Windows:

   Windows automatically finds and opens the setup file. Go to step 5.

   If the installer does not open, double-click **setup.exe** or select **Start > Run** and enter the following command, where *x* is the CD or DVD drive:

   ```
   x:\setup.exe
   ```

   On all UNIX platforms:

   Set the DISPLAY environment variable to point to a host with a graphical user interface such as X-Windows, otherwise, the installation starts in console mode.

   On HP Itanium:

   Enter the following command, where *cdrom* is the directory you specified when mounting the CD or DVD:

   ```
   cd /cdrom
   ./setup.bin
   ```

   On IBM AIX:

   Enter the following command, where *device_name* is the name of the CD or DVD drive device:

   ```
   cd /device_name
   ./setup.bin
   ```

On Linux and Linux on POWER:

Enter the following command at the # prompt:

```
cd /mnt/cdrom
./setup.bin
```

On Solaris:

Enter the following command, where *cdrom* is the directory you specified when mounting the CD or DVD and *volume label* is the volume name in the */cdrom* directory:

```
cd /cdrom/volume label
./setup.bin
```

4. Go to step 5 unless you see a message warning that there is not enough disk space in the temporary disk space directory. Set the temporary directory to a directory with at least 1GB of disk space on UNIX and 300MB on Windows. To set the temporary directory on:
   - Windows – set the TMP environment variable to the temporary directory.
   - UNIX and Linux – set the IATEMPDIR environment variable to the temporary directory.
5. Shut down other programs and click **Next**.
6. In the Choose Install Folder window, do one of:
   - Accept the default installation directory and click **Next**.
     The UNIX default install directory is `/opt/sybase` and the Windows default directory is `C:\Sybase`.
   - Enter a different installation directory name, and then click **Next**.
     You cannot enter spaces or double-byte characters in the directory name.
     The installer warns you if you choose to install in an existing Sybase product directory. In some cases, installing Replication Server in an existing directory can irreversibly affect other Sybase software.
7. In the Choose Install Set window, select **Typical installation** and click **Next**.

   Note: A typical installation installs the Replication Server components considered to be useful for most customers.
8. Select your geographic location.
9. Read the Sybase license agreement. If you agree to the terms of the Sybase license, select **I agree to the terms of the Sybase license for the install location specified**. Click **Next**.

   You must agree to the license agreement to proceed with the installation.
10. If the installer does not detect any license it can use, you see the SySAM window. Select one of:
    - **Specify License Keys** – click **Browse** to select the license file or copy the license key directly into the pane, and then click **Next**. If you specify a served license key, the installer prompts you to install a new SySAM license server. Select:

  - **Next** – to install the new SySAM license server and follow the installation prompts.
  - **Previous** – and select **Use previously deployed license server** if you have an existing SySAM license server on the same host.
- **Use Previously Deployed License Server** – if you have a SySAM license server already installed, then enter the host name and the port number of the license server. Click **Next**.
- **Continue Installation Without a License Key** – if you do not have licenses for any of the Replication Server components. Click **Next** to proceed. You can install and use Replication Server components without a license for a grace period of 30 days. Click **Next**.

  Note: Your grace period starts when you install the product.

  See the *SySAM Users Guide*.

11. Enter the information required in the SySAM Notification window and click **Next**.
12. The Pre-Installation Summary window displays the selections you have made. Review the information , and click **Install**.
13. On the Start Sample Replication Server window, select:

Note: You cannot start the sample Replication Server on Linux on POWER because the ERSSD requires Sybase SQL Anywhere Server, which is not available on Linux on POWER.

Option	Description
Yes	To configure and start a sample Replication Server. The installer displays the configuration information for the sample Replication Server. Record this information. You can enter a maximum of 30 bytes in the password field. For a: • Single-byte character – enter 6 to 30 characters. • Double-byte character – enter 3 to 15 characters. After you enter a valid password, the installer displays the configuration information related to the sample Replication Server.
No	To manually configure a full-featured Replication Server and start a sample Replication Server after installation. On the installer prompt, select either: • **Yes** – to create a sample Replication Server directory without starting the sample Replication Server, or, • **No** – to continue with the installation.

14. Click **Next**.
    The installer installs the components on your hard drive and displays the progress of the installation. You see a message confirming a successful installation.

15. Click **Done** to close the installer.

You are now ready to create the replication environment.

Next

Perform the necessary postinstallation tasks before setting up your replication environment.

See also

- *The Replication Environment* on page 23
- *Installation Directory for Replication Server* on page 11
- *Replication Server Installation in a Unique Directory* on page 12

Postinstallation Tasks

After installing Replication Server, perform the postinstallation tasks necessary for your site.

Adding a Login for Replication Manager to the Adaptive Servers

Add a login name and password for Replication Manager to the primary database and to the replicate database. Grant each login name "sso_role" and "sa_role". The Replication Manager plug-in to Sybase Central uses these names to log in to the data servers.

Create the login names and passwords and grant the required privileges using the Adaptive Server plug-in to Sybase Central, Java Edition.

Alternatively, use the **sp_addlogin** system procedure and grant command at the command line.

For more information, see *Adaptive Server Enterprise System Administration Guide: Volume 1 > Managing Adaptive Server Logins, Users, and Client Connections*.

Changing the Replication Server Host Name Using dsedit

Modify the default host name "localhost" in the Replication Server interfaces file to the actual server name if either the primary or the replicate Adaptive Server is not on the Replication Server machine.

1. Shut down the sample Replication Server by executing **shutdown** at the **isql** prompt in `%SYBASE%\REP-15_5\samp_repserver` on Windows or `$SYBASE/REP-15_5/samp_repserver` on UNIX.

   Note: The installer creates the `samp_repserver` directory, if you choose to create a sample Replication Server directory and configure SAMPLE_RS after installation.

2. Navigate to `%SYBASE%\OCS-15_0\bin` (Windows), or `$SYBASE/OCS-15_0/bin` (UNIX).

3. On Windows, double-click **dsedit.exe**.

   On UNIX, enter:

   ```
   dsedit
   ```

4. Select **InterfacesDriver** and click **OK**.
5. In the left pane, select SAMPLE_RS.
6. In the right pane, double-click **Server Address**, then click **Edit**.
7. In the Network Address field:
   - Delete localhost.
   - Add the name of the machine on which Replication Server will run.
8. Click **OK** twice, then select **File > Exit**.
9. Restart the sample Replication Server.

   On Windows, either:

   - Select **Control Panel > Administrative Tools > Services**, right-click **Sybase Rep_SAMPLE-RS**, and select **Start**.
   - Double-click **RUN_SAMPLE_RS.bat** or execute **RUN_SAMPLE_RS.bat** on the command line from `%SYBASE%\REP-15_5\samp_repserver`.

   On UNIX and Linux – execute RS_SAMPLE_RS on the command line from `$SYBASE/REP-15_5/samp_repserver`.

For more information on **dsedit**, see *Adaptive Server Enterprise Utility Guide > Using **dsedit***.

Server Entries to the Interfaces Files

When you install Replication Server in an existing Sybase installation directory, the installer adds Replication Server information to the existing interfaces file. When you install Replication Server in a unique installation directory, the installer creates a new interfaces file. In this instance, you will have two interfaces files—one for your existing Sybase applications and one for Replication Server.

To allow the Adaptive Servers and Replication Server to communicate, you must:

- Add an entry for Replication Server in the Sybase interfaces file used by the Adaptive Servers
- Add entries for the primary and replicate Adaptive Servers in the Replication Server interfaces file

For each server, you need:

- Server name
- Host name
- Port number

Adding Server Entries to the Interfaces Files

Use **dsedit** to add entries for the primary and replicate Adaptive Server in the Replication Server interfaces file.

1. Navigate to `%SYBASE%\OCS-15_0\bin` (Windows), or `$SYBASE/OCS-15_0/bin` (UNIX).
2. On Windows, double-click **dsedit.exe**.

   On UNIX, enter:

   ```
   dsedit
   ```
3. Select **InterfacesDriver** and click **OK**.
4. Select **Server Object > Add**.
5. Enter the name of the primary Adaptive Server. Click **OK**.
6. Enter the host name and port number of the primary Adaptive Server. For example:

   ```
   chaucer, 35356
   ```
7. Click **OK**.
8. Select **Server Object > Add**.
9. Enter the name of the replicate Adaptive Server. Click **OK**.
10. Enter the host name and port number of the replicate Adaptive Server. For example:

    ```
    johnson, 9756
    ```
11. Click **OK** twice, then select **File > Exit**.

The Replication Environment

Set up a replication environment and configure a sample Replication Server for replication.

To set up and configure Replication Server without using Replication Manager, see the *Replication Server Configuration Guide* for your platform.

Starting Sybase Central

Start Sybase Central.

Perform any of these to start Sybase Central:
In Windows:

- Select **Start > Programs > Sybase > Sybase Central v6.0**.
- Create a shortcut on your desktop for Sybase Central.
- Navigate to `%SYBASE%\Shared\Sybase Central 6.0.0\win32` on 32- bit Windows platforms or the `win64` subdirectory on 64-bit platforms.
- Double-click **scjview.exe**.

In UNIX:

- ```
  cd $SYBASE
  source SYBASE.sh
  ./runSybaseCentral
  ```
- Or, execute:

  ```
  source $SYBASE/SYBASE.sh
  $SYBASE/Shared/sybasecentral600/scjview.sh
  ```

Note: To run Sybase Central on UNIX platforms, you must have a graphical user interface (GUI), such as X-Windows.

The Sybase Central main window appears. The Replication Manager icon appears in the left and right panes.

Defining the Replication Environment

Define the Replication Environment. A replication environment is an object in Replication Manager that represents all servers that participate in replication.

Prerequisites

Verify that you have started the sample Replication Server.
  ```

Task

Use the wizard to add the Replication Server, the primary Adaptive Server, and the replicate Adaptive Server. Record the user names and passwords that you define, as you will need this information later on.

This task uses the sample Replication Server named SAMPLE_RS created during installation.

1. From the left pane of the Sybase Central main window, select the **Replication Manager** icon.
2. In the right pane, double-click **Add Replication Environment**.
3. Enter a name for your replication environment; for example MY_RSENV. Click **Next**.
4. Enter a user name, password, and retype the password in the confirmation field to access the replication environment. Click **Next**.
5. Click **Add**. Select the type of server to add to the environment. To add the sample Replication Server, select **Replication Server**. Click **Next**.
6. Select SAMPLE_RS as the server. Click **Next**.
7. Enter:
   - User name – sa
   - Password – sa user password for the SAMPLE_RS. You can enter a maximum of 30 bytes in the password field. For:
     - **single-byte character –** enter 6 to 30 characters.
     - **double-byte character –** enter 3 to 15 characters.

   Click **Next**.
8. Click **Next** to move past the Select RSSD Server window.
9. Enter:
   - User name – SAMPLE_RS_RSSD_prim
   - Password – Same as the password for SAMPLE_RS.

   Click **Next**.
10. Click **Finish**.
11. Click **Add** to add Adaptive Server Enterprise containing the primary database to the environment. Select **Adaptive Server Enterprise** and click **Next**.
12. Select the primary Adaptive Server from the Servers list. Click **Next**.

    Add a user name and password that Replication Manager can use to log in to the primary database. This user must be the system administrator, or the equivalent, with "sso_role" and "sa_role" privileges.
    - User name
    - Password

    Click **Finish**.

13. Click **Add** to add Adaptive Server Enterprise containing the replicate database to the environment. Select **Adaptive Server Enterprise** and click **Next**.
14. Select the replicate Adaptive Server from the Servers list. Click **Next**.

    Add a user name and password that Replication Manager can use to log in to the replicate database. This user must be the system administrator, or the equivalent, with "sso_role" and "sa_role" privileges.
    - User name
    - Password

    Click **Finish**.
15. Click **Next**.

    Check the summary page to make sure the information is correct and complete.

    If the information is not correct, click **Back** to return to previous pages and correct the information.
16. Click **Finish**.

In Sybase Central, the new replication environment icon using the name you specified appears in the left pane beneath the Replication Manager icon.

Configuring Replication

Create connections between servers, a database replication definition, and a database subscription.

Prerequisites

Verify that you have created the replication environment.

Task

The database replication definition describes the information that can be replicated from the primary database. The database subscription describes the replicated information that the replicate database can accept. In this instance, Replication Manager creates the database replication definition and the database subscription for you. You are ready to replicate data once you successfully complete this task.

1. In the left pane of the Sybase Central main window, select the replication environment object you created.
2. In the right pane, double-click **Configure Replication**.
3. Select **Create an Environment Where the Primary Database is Replicated to Several Replicate Sites**. Click **Next**.

4. Select the primary Adaptive Server and the primary database. For example, select the `pubs2` or `pubs3`. Click **Next**.
5. Select SAMPLE_RS. Click **Next**.
6. Select the replicate Adaptive Server and the replicate database. Click **Add**.
   Replication Manager creates a connection between the sample Replication Server and the replicate data server and database. This connection, target_server.database, appears in the Connections list. Click **Next**.
7. Accept the default maintenance user name and password. Replication Manager creates the maintenance user. Click **Next**.
8. Accept the default RepAgent user name and password.
   Replication Manager creates the RepAgent user. Click **Next**. Select a materialization method.
9. Select **Create Subscription Without Materialization**.
   This specifies that the primary and target databases are already synchronized. Click **Next**.
10. Review the summary of the replication environment.

    If everything looks correct, click **Finish**. If not, click **Back** to return and make the necessary changes. Click **Finish** when you are satisfied that the summary environment information is correct.
11. Review the summary to make sure each step was successful. Click **Close**.

You have installed a sample Replication Server, set up a replication environment, and configured the environment for replication. You are ready to replicate information from the primary to the replicate database in this sample environment.

Verifying Data Replication

Use Transact-SQL® commands to verify that replication is occuring.

Transact-SQL is used in Adaptive Server databases for querying, adding new data, modifying existing data, and deleting existing data. Transact-SQL is described in the *Adaptive Server Enterprise Transact-SQL Users Guide*.

1. Log in to the primary database and use Transact-SQL commands to add, alter, or delete information in one or more of the primary database tables.
2. Log in to the replicate database and confirm that your changes have been replicated.

Example

This example shows how to perform a simple update in the primary database, and then view the replicated changes in the replicate database.

1. Log in to the primary Adaptive Server:

```
isql -Usa -P -SSAMPLE_PDS
```

The **isql** prompt appears:

```
>
```

2. Choose the primary database:

```
1> use pubs2
2> go
```

3. Grant the permission on `authors` table to public:

```
1> grant all on authors to public
2> go
```

4. Verify that Chastity Locksley is listed in the `au_lname` and `au_fname` columns of the `authors` table. To view all author names in the `authors` table, enter:

```
1> select au_fname, au_lname
2> from authors
3> go
```

Adaptive Server prints out the contents of the `au_fname` and `au_lname` columns.

5. Change the name of Chastity Locksley to Chastity Hilton in the `authors` table. Enter:

```
1> update authors
2> set au_lname = "Hilton"
3> where au_lname = "Locksley"
4> go
```

6. Verify that the change has taken place at the primary database. For example, enter:

```
1> select au_fname, au_lname
2> from authors
3> where au_fname = "Chastity"
4> go
```

The primary Adaptive Server prints out "Chastity Hilton."

7. Log in to the replicate Adaptive Server:

```
isql -Usa -P -SSAMPLE_RDS
```

The **isql** prompt appears.

8. Choose the replicate database:

```
1> use pubs2
2> go
```

9. Verify that the change has replicated to the replicate database:

```
1> select au_fname, au_lname
2> from authors
3> where au_fname = "Chastity"
4> go
```

The replicate Adaptive Server prints out "Chastity Hilton," which indicates that the replication system is working.

Next

You can create your own Transact-SQL statements to update the primary database and then view the updates at the replicate database. For example, using the database replication

definition and database subscription created during configuration, you can perform these actions and watch the changes appear at the replicate database:

- Add information to a table using the **insert** command.
- Delete information from a table using the **delete** command.
- Create and populate a table using the **create table** and then the **insert** command.
- Depopulate a table using the **truncate table** command.

You can create your own database replication definitions that filter out specified tables, transactions, or data definition language (DDL) commands.

See *Replication Server Administration Guide Volume 1 > Manage Replicated Objects Using Multisite Availability* for more information about creating database replication definitions and subscriptions, and customizing your replication environment.

Manage Replication Server

Manage Replication Servers and related components in the replication environment.

Starting the Sample Replication Server

Start the sample Replication Server manually if it is shut down. The Replication Server installer starts the sample Replication Server after you complete the installation.

1. For Windows:
   a) Using Windows Explorer, navigate to `%SYBASE%\%SYBASE_REP%\samp_repserver`.

   Note: This directory is available if you choose to create a sample Replication Server directory during installation.

   b) Double-click **RUN_SAMPLE_RS.bat**.
2. For UNIX:
   a) Navigate to `$SYBASE/$SYBASE_REP/samp_repserver`.
   b) Execute RUN_SAMPLE_RS.

Logging in to the Sample Replication Server

Log in to Replication Server from the command line using the **isql** utility with the **sa** user name.

Use **isql** to execute Replication Server commands. Logging in to Replication Server is an easy way to find out if Replication Server is running.

1. From the command prompt, enter:

   ```
   isql -Usa -Padmin -SSAMPLE_RS
   ```

   If the sample Replication Server is running, you see:

   ```
   1>
   ```
2. To quit **isql**, enter:

   ```
   1> exit
   ```

Stopping the Sample Replication Server

Shut down the sample Replication Server.

1. Log in to the sample Replication Server.
2. Enter:

```
1> shutdown
2> go
```

Viewing the Sample Replication Server Logs

View a record of Replication Server actions. Viewing the log can help you identify problems.

Note: The `SAMPLE_RS.log` file is available if you choose to install and start sample Replication Server during installation.

Use a text editor to open the `SAMPLE_RS.log` file.

All log files for the sample Replication Server are located in the `samp_repserver` directory. Replication Server records its actions and notes failures in `SAMPLE_RS.log`.

Viewing Database Replication Definitions

View a database replication definition in Replication Manager for Sybase Central.

1. In the right pane, scroll down to

   Replication Environment > *primary_Adaptive_Server_name* > *primary_dbase_name* > Database replication definitions.
2. In the left pane, double-click a database replication definition. You created the *database_name*-1 database replication definition during configuration.
   The Replication Definition Properties window opens for the database replication definition you selected.

Viewing Database Subscriptions

View a database subscription in Replication Manager for Sybase Central.

1. In the right pane, select **Replication Environment > *replicate_Adaptive_Server_name* > *replicate_dbase_name* > Database subscriptions**.

2. In the left pane, double-click a database subscription. You created the *database_name*-1 database subscription during configuration.
   The Subscriptions Properties window opens for the database subscription you selected.

Replication Manager

The Replication Manager (RM) can manage small and simple replication environments by directly connecting to the servers in the replication environment. It identifies problems within the replication environment, and allows you to fix them. It also provides the ability to create, alter, and delete replication components in the environment.

However, to manage large and complex replication environments with more than ten servers, the RM requires the help of a monitoring component called Replication Monitoring Services (RMS). For such environments, the RM provides commands to create, modify, or delete replication components, while RMS provides the ability to monitor the replication environment.

For information on monitoring the replication environment using the RM and RMS, see:

- *Replication Server Confuguration Guide > Replication Monitoring Services*
- *Replication Server Administration Guide Volume 1 > Manage Replication Environment with Sybase Central*

Index

A

about getting started 5
accounts, creating sybase user 14
Add Replication Environment wizard 23
Adding a login for Replication Manager 19
Adding login to Adaptive Servers
    for Replication Manager 19
administration tasks 14
audience 5

C

changing host name
    Replication Server 19
Configure Replication wizard 25
configuring
    replication environment 23, 25
conventions
    style 1
    syntax 1
CPU requirements 7
creating sybase user accounts 14

D

database replication definitions 25
    filters 26
    viewing 30
database subscriptions 25, 26
    viewing 30
defining
    replication environment 23
disk storage requirements 7, 8
dsedit utility
    adding server entries to interfaces file 20
    changing Replication Server host name 19
DVD reading errors 15

E

Embedded Replication Server System Database
        (ERSSD) 5, 7, 8
environment
    verification 14
example
    replication 26
ExpressConnect for HANA DB (ECH) 8

F

filters
    database replication definitions 26

G

grant command 19
gzip utility, for HP 8

H

hardware requirements 7
host name 19

I

IATEMPDIR environment variable 15
installation directory 11
    existing 12
    selecting 5
    unique 12
installer
    tasks performed 15
installing Replication Server 15
interfaces file 12

L

libraries
    SMP runtime 8
licenses
    obtaining 6
logging in
    sample Replication Server 29
login for Replication Manager
    adding to Adaptive Servers 19

M

maintenance user 25
materialization method 25
Microsoft Visual C++ 2010 7
Microsoft Visual Studio 2005 7
monitoring
    Replication Manager 31
    Replication Monitoring Services 31

O

operating system
    requirements 8
operating system requirements 7
overview
    SySAM licensing 6

P

planning the replication system 5
postinstallation tasks 19
preinstallation tasks 5
primary Adaptive Server 5, 25
primary database 5, 25

R

RAM requirements 7
replicate Adaptive Server 5, 25
replicate database 5, 23, 25, 26
replicating data 26
replication environment
    components 5
    configure 23
    defining 23
    set up 23
Replication Manager 31
Replication Monitoring Services 31
Replication Server
    changing host name using dsedit 19
    installing 15
    licenses 6
replication, configuring 25
requirements
    CPU 7
    disk storage 7, 8
    hardware 7
    operating system 7, 8
    RAM 7
    VMware 7, 8
RMS 5
runtime libraries 8

S

sa_role permission 19
sample Replication Server
    logging in 29
    run file 29
    starting 29
    stopping 30
    viewing logs 30
setting up
    replication environment 23
sp_addlogin command 19
sso_role permission 19
starting Sybase Central 23
stopping
    sample Replication Server 30
supported protocols 7, 8
Sybase Central 5
    starting 23
Sybase license agreement 15
sybase user account
    creating 14
SySAM 15
system requirements 5, 7, 8

T

tables
    system requirements 7, 8
tasks
    administration 14
    postinstallation 19
    preinstallation 5
temporary disk space 15
TMP environment variable 15

U

user account
    sybase 5, 14
utilities
    gzip 8

V

verifying data replication 26
verifying environment 14
viewing
    database replication definitions 30
    database subscriptions 30
    logs 30
VMware 7

X

X-Windows 23